

**Claims:**

1. A polymorphic form of 3-phenylsulfonyl-8-piperazin-1-yl-quinoline characterised in that it provides:
  - 5 (i) an infrared spectrum containing peaks at 724, 758, 777, 804, 818, 838, 856, 905, 918, 948, 1023, 1055, 1081, 1092, 1118, 1136, 1153, 1178, 1244, 1302, 1318, 1365, 1378, 1403, 1444, 1471, 1490, 1569, 1584, 1603 and 2819 cm<sup>-1</sup>; and/or
  - (ii) a Raman spectrum containing peaks at 159, 184, 214, 241, 285, 304, 318, 429, 545, 558, 614, 706, 724, 803, 856, 1000, 1023, 1080, 1093, 1136, 1152, 1233, 1243,
  - 10 1317, 1343, 1364, 1378, 1403, 1446, 1569, 1584, 1602, 3050 and 3073 cm<sup>-1</sup>; and/or
  - (iii) an X-ray powder diffraction (XRPD) pattern which gives calculated lattice spacings at 10.29, 11.94, 17.47, 19.55, 19.84, and 20.33°; and/or
  - (iv) a melting point of 188°C.
- 15 2. A polymorph according to claim 1 which provides an infrared spectrum substantially in accordance with Figure 1.
3. A polymorph according to claim 1 or claim 2 which provides a Raman spectrum substantially in accordance with Figure 2.
- 20 4. A polymorph according to any one of claims 1 to 3 which provides an X-ray powder diffraction (XRPD) pattern which gives calculated lattice spacings at 10.29, 10.76, 11.94, 14.33, 14.61, 14.93, 16.02, 16.80, 17.47, 17.92, 19.13, 19.55, 19.84, 20.33, 21.16, 21.36, 23.33, 23.96, 24.44, 24.67, 25.51, 26.12, 27.13, 27.77, 28.06,
- 25 28.35, 29.23, 29.46, 30.06, 30.35, 31.27, 32.35, 32.66, 33.08, 33.77, 34.49, 35.18, 36.42, 37.34, 38.39 and 39.51°.
5. A polymorph according to any one of claims 1 to 4 which provides an X-ray powder diffraction (XRPD) pattern substantially in accordance with Figure 3.
- 30 6. A polymorph according to any one of claims 1 to 5, in isolated form.
7. A polymorph according to any one of claims 1 to 5, in pure form.
- 35 8. A polymorph according to any one of claims 1 to 5, in crystalline form.
9. A pharmaceutical composition which comprises a polymorph according to any one of claims 1 to 8 and a pharmaceutically acceptable carrier or excipient.
- 40 10. A polymorph according to any one of claims 1 to 8 for use in therapy.

11. A polymorph according to any one of claims 1 to 8 for use in the treatment of depression, anxiety, Alzheimers disease, age related cognitive decline, ADHD, obesity, mild cognitive impairment, schizophrenia, cognitive deficits in schizophrenia and stroke.
- 5 12. The use of a polymorph according to any one of claims 1 to 8 in the manufacture of a medicament for the treatment or prophylaxis of depression, anxiety, Alzheimers disease, age related cognitive decline, ADHD, obesity, mild cognitive impairment, schizophrenia, cognitive deficits in schizophrenia and stroke.
- 10 13. A pharmaceutical composition comprising a polymorph according to any one of claims 1 to 8 for use in the treatment of depression, anxiety, Alzheimers disease, age related cognitive decline, ADHD, obesity, mild cognitive impairment, schizophrenia, cognitive deficits in schizophrenia and stroke.
- 15 14. A method of treating depression, anxiety, Alzheimers disease, age related cognitive decline, ADHD, obesity, mild cognitive impairment, schizophrenia, cognitive deficits in schizophrenia and stroke which comprises administering a safe and therapeutically effective amount to a patient in need thereof of a polymorph according to any one of claims 1 to 8.
- 20 15. A method of promoting neuronal growth within the central nervous system of a mammal which comprises the step of administering a polymorph according to any one of claims 1 to 8.
- 25 16. Use of a polymorph according to any one of claims 1 to 8 in the manufacture of a medicament for promoting neuronal growth within the central nervous system of a mammal
- 30 17. A pharmaceutical composition comprising a polymorph according to any one of claims 1 to 8 for use in promoting neuronal growth within the central nervous system of a mammal.